CLAIMS

What is claimed is:

1. A fuser assembly, comprising:

a roller having a heat absorptive outer layer on an inner core of a thermally isolating material; and

a radiant heating element positioned adjacent and external to said outer layer of said roller.

2. The fuser assembly according to claim 1 wherein said outer layer comprises an interior metallic layer and an exterior release layer.

3. The fuser assembly according to claim 1 wherein said outer layer comprises an inner metal layer and an outer elastomeric layer.

4. The fuser assembly according to claim 1 further comprising a temperature transducer configured to detect a surface temperature of said elongated roller.

5. The fuser assembly according to claim 1 further comprising a heating element controller configured to operate said heating element in response to a temperature of said elongated roller.

6. The fuser assembly according to claim 5 wherein said controller is further responsive to a quantity of toner applied to a section of media corresponding to a section of said fuser roller heated by said heating element.

7. The fuser assembly according to claim 1 wherein said radiant heating element comprises:

a heating array; and

a heat reflector disposed to direct at least a portion of heat radiated by said heating array toward said roller.

8. The fuser assembly according to claim 7 wherein said heat reflector also directs at least a portion of heat radiated by said heating array toward a media to thereby preheat said media prior to engaging said roller.

9. The fuser assembly according to claim 1 wherein said low thermal mass outer layer has a thickness of between zero and three millimeters.

10. The fuser assembly according to claim 1 wherein said roller comprises a homogeneous construction of a selected material, said material formed to have a nonporous skin forming said outer layer and a porous internal structure forming said inner core.

11. A fuser assembly according to claim 1 further comprising a thin layer of release material covering the low thermal mass outer layer.

12. The fusing assembly according to claim 1 further comprising a media preheating element configured to radiationally heat said media prior to being received by said roller.

13. The fusing assembly according to claim 1 wherein said heating element includes a plurality of longitudinally oriented heating arrays circumferentially spaced along a periphery of said roller.

14. The fusing assembly according to claim 12 including a controller configured to detect a thermal property of said roller and, in response, dynamically control said heating arrays, wherein said thermal property includes a differential temperature measured on either side of a nip region of said roller.

15. A heated fuser, comprising:

a fusing roller comprising low thermal mass outer layer surrounding a thermally isolating core;

a pressure roller comprising an elastomeric outer layer, the pressure roller disposed adjacent to the fusing roller; and

a radiant heating device disposed external to said fusing roller and configured to heat said low thermal mass outer layer of said fusing roller to a desired operating temperature.

16. The heated fuser according to claim 15 wherein said outer layer comprises an interior metal layer and an exterior release layer.

17. The heated fuser according to claim 15 wherein said low thermal mass outer layer comprises an interior metal layer and an exterior elastomeric layer.

18. The heated fuser according to claim 15 wherein said radiant heating device is further configured to heat a media prior to said media engaging said fusing roller.

19. A method of fusing toner onto a media comprising the steps of:

radiantly heating a fusing roller using heat focused upon a surface of said fusing roller; and

transporting the media into rolling contact with said fusing roller to simultaneously heat said toner to a desired temperature and apply pressure to the toner causing the toner to fuse to the media.

20. The method according to claim 19 further comprising the steps of:

applying the toner to the media;

radiationally preheating the toner on a portion of the media prior to said transporting step bringing said portion into contact with said fusing roller;

detecting a temperature of said fusing roller; and

controlling said step of generating in response to said detected temperature.